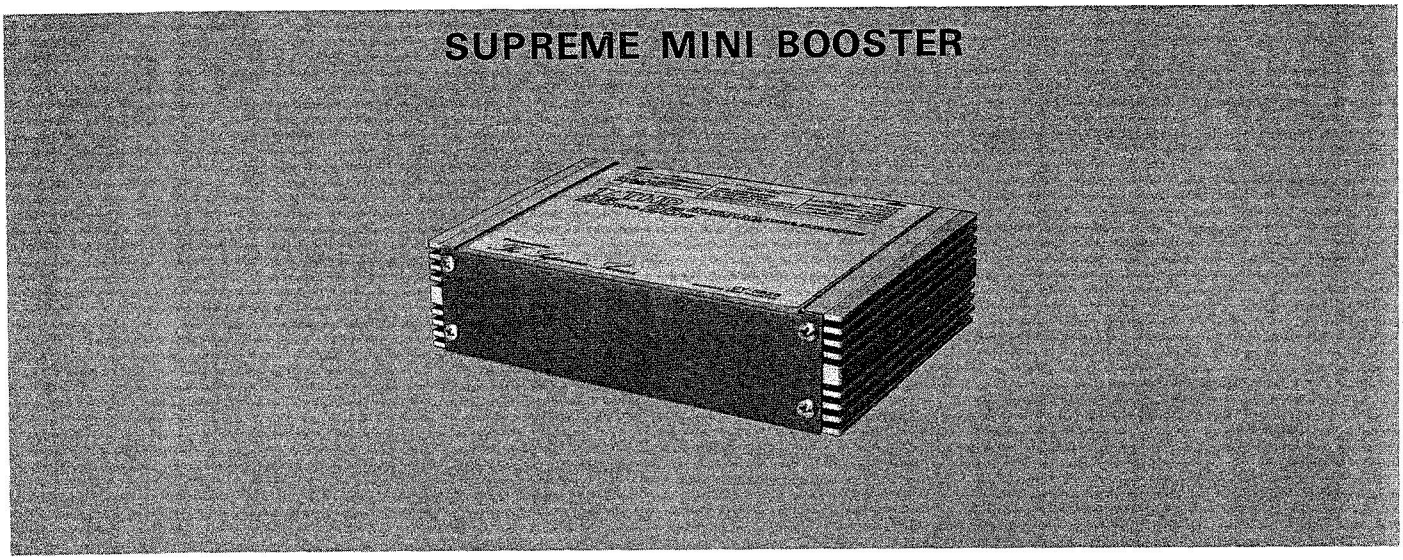
ORDER NO. APD-8109-067

Service Manual

AUTO PRODUCTS

CY-SB25EU/EC



SPECIFICATIONS*

Power Supply:	12 V DC (11 ~ 16 V) Test Voltage 14.4 V Negative Ground
Current Consumption:	3.5 A (at 12 W per channel)
Power Output:	12 W per channel into 4 ohms, 20 to 30,000 Hz, at 1% THD.
Frequency Response:	20 to 40,000 Hz, ±3 dB
Signal/Noise Ratio:	85 dB (A-weighted)
Input Impedance:	6.8 Ω
Speaker Impedance:	4 Ω (4 ~ 8 available)
Dimensions:**	5-1/2"(W)x 4-3/16"(D)x 1-1/2"(H) (140 mm)x(106 mm)x(38 mm)
Weight:**	1 lb. 9 oz. (0.7 kg)

*Above specifications comply with EIA interim standard.
*Specifications subject to change without notice.
** Weight and Dimensions shown are approximate.

FEATURES

- 25 W x 2, 2-channel stereo power amplifier.
- DC 12 V, negative ground.
- B. T. C. L. (Balanced Transformer and Capacitor Less)
- Integrated circuit built-in thermal fuse.
- Remote power on/off control system.
- Low input impedance for operable fader control.
- Transformer less input circuit.

CAUTION

- **Use ungrounded speaker only.**
- **Do not ground any of the speaker terminals.**
- **Power supply cord should be connected to the positive terminal (+) of the battery or fuse block (BAT) terminal.**
- **Use speakers rated at 12 W or more.**
- **Be sure to connect the speakers before operating.**
- **Place the unit in a well ventilated area.**
- **Keep this unit away from rain or water.**

This MODEL is designed to connect for OTL models.
Never connect BTL models.

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Y-SB25EU/EC

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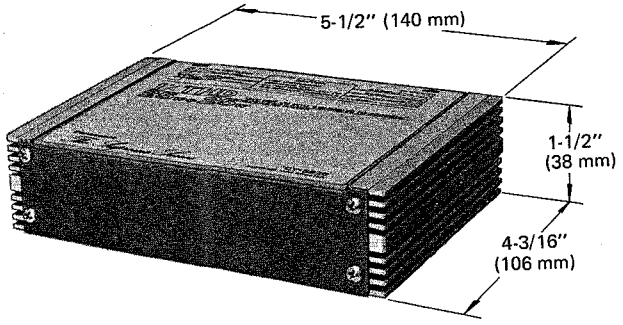
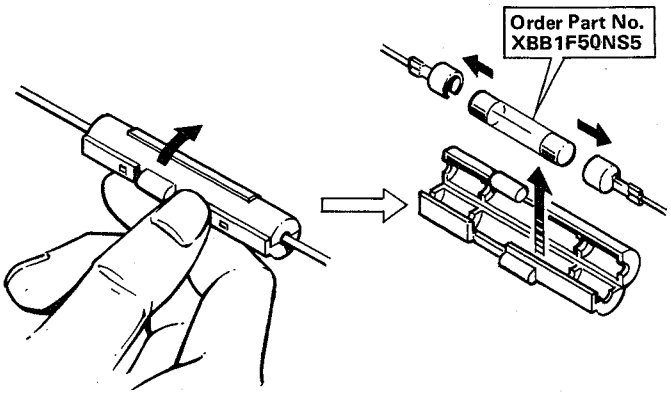
DIMENSIONS



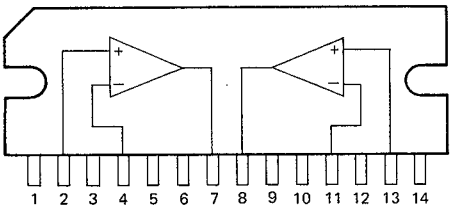
FUSE REPLACEMENT

Be sure to use a 5 A fuse for replacement. Use of a larger fuse may not protect the unit from excessive current drain.



IC EQUIVALENT CIRCUIT

YEAMM51517L

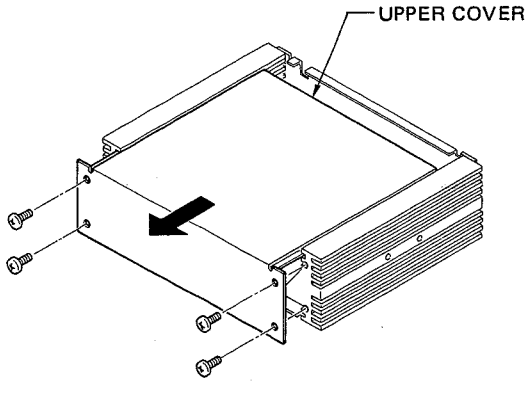


1	Vcc-1	8	Output-2
2	Input-1	9	Ground-2
3	Decoupling-1	10	Boost Strap-2
4	Ripple Filter-1	11	Ripple Filter-2
5	Boost Strap-1	12	Decoupling-2
6	Ground-1	13	Input-2
7	Output-1	14	Vcc-2

DISASSEMBLY INSTRUCTIONS

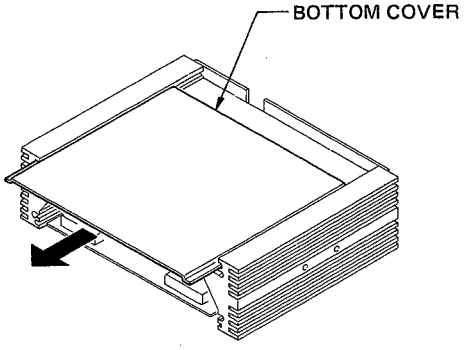
UPPER COVER REMOVAL

1) Remove 4 screws.
2) Slide out the upper cover.



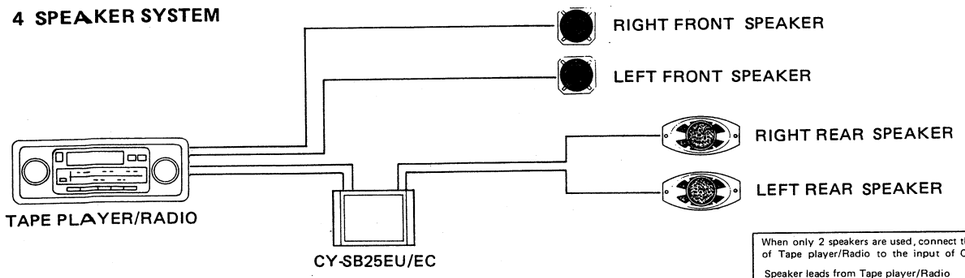
BOTTOM COVER REMOVAL

- Slide out the bottom cover after the upper cover removed.

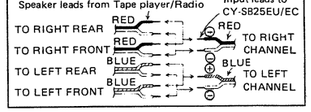


CONNECTING DIAGRAM

■ 4 SPEAKER SYSTEM

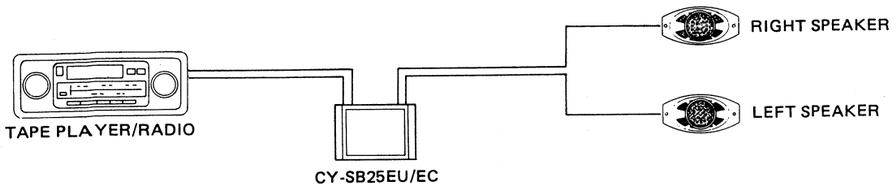


When only 2 speakers are used, connect the speaker wires of Tape player/Radio to the input of CY-SB25EU/EC.

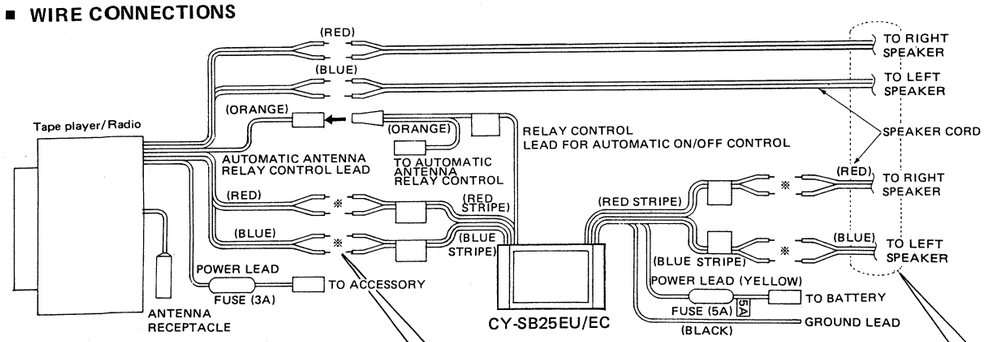


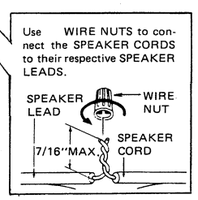
* In addition to the above system diagram, you also may connect a CY-SB25EU/EC to the front speakers.

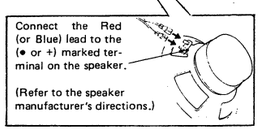
■ 2 SPEAKER SYSTEM



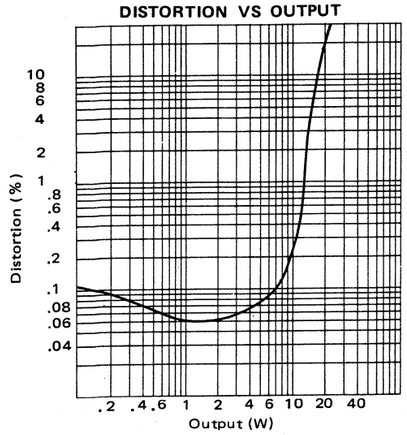
■ WIRE CONNECTIONS



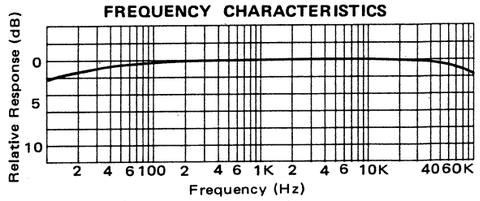




DISTORTION VS OUTPUT

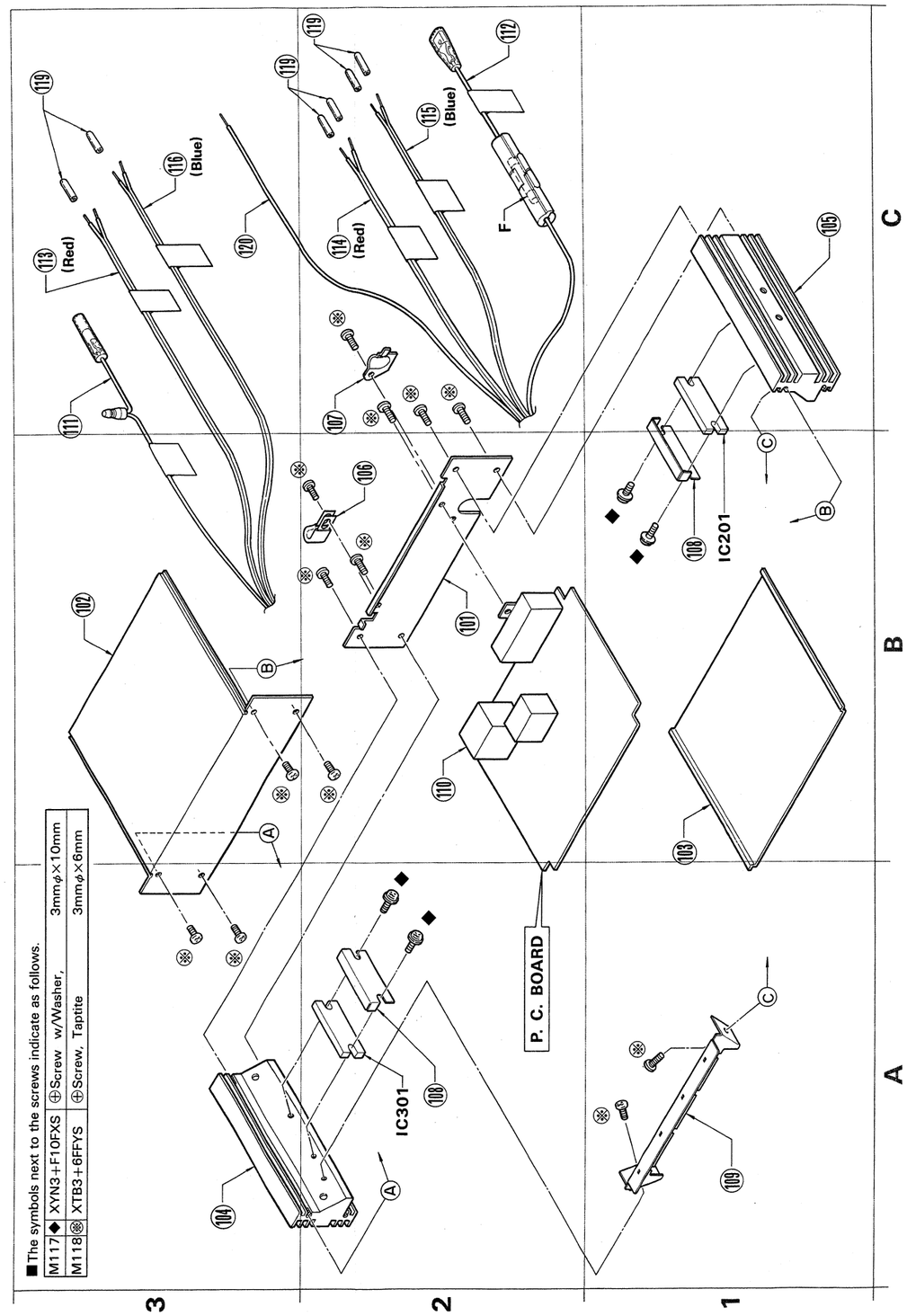


FREQUENCY CHARACTERISTICS



EXPLODED VIEW

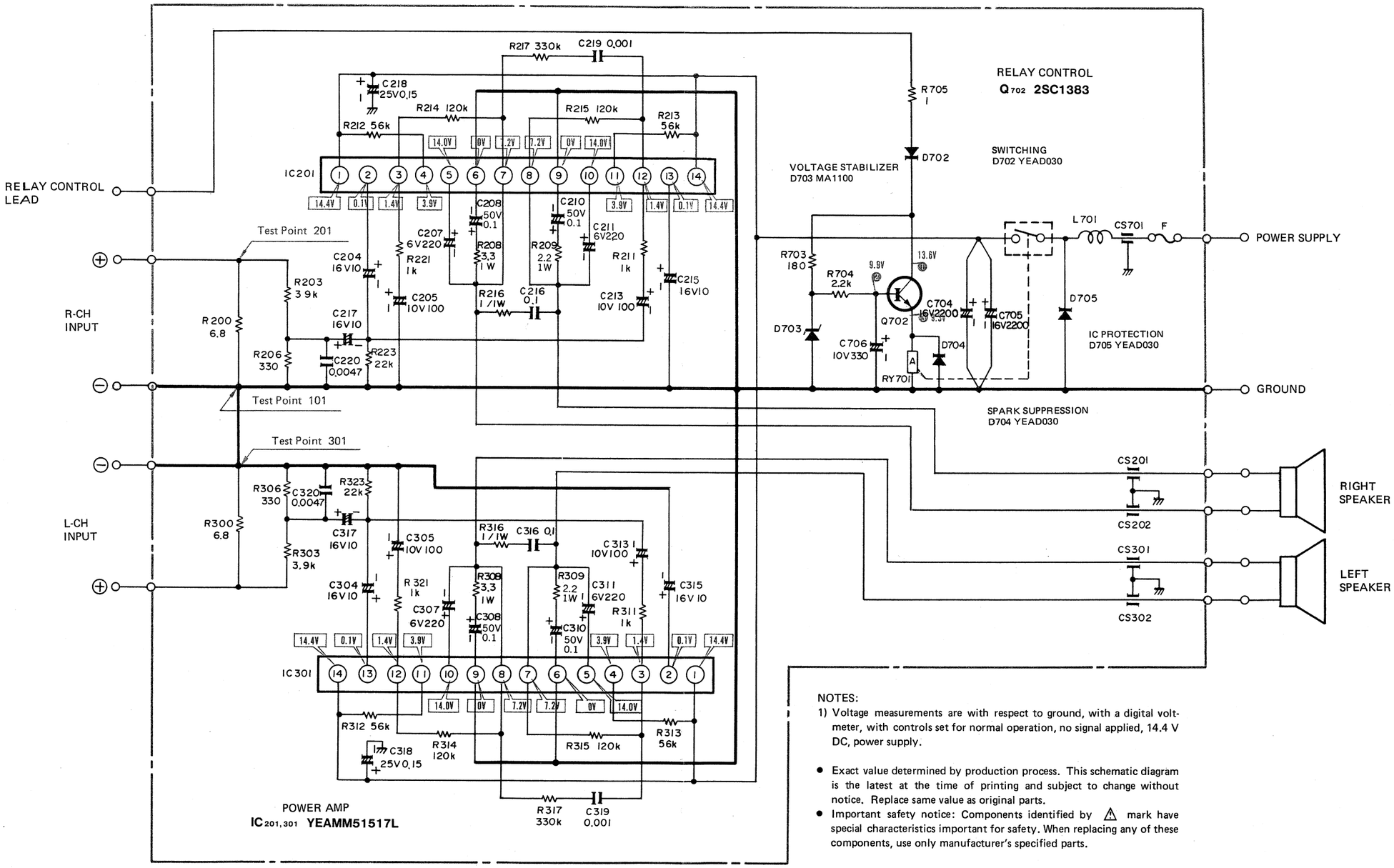
■ Numbers in ○ are indicated REF. NO. in the REPLACEMENT PARTS LIST.



■ The symbols next to the screws indicate as follows.

M117	◆	XYN3+F10FXS	⊕Screw w/Washer, 3mmφ×10mm
M118	⊛	XTB3+6FFYS	⊕Screw, Taptite 3mmφ×6mm

SCHEMATIC DIAGRAM MODELS CY-SB25EU/EC



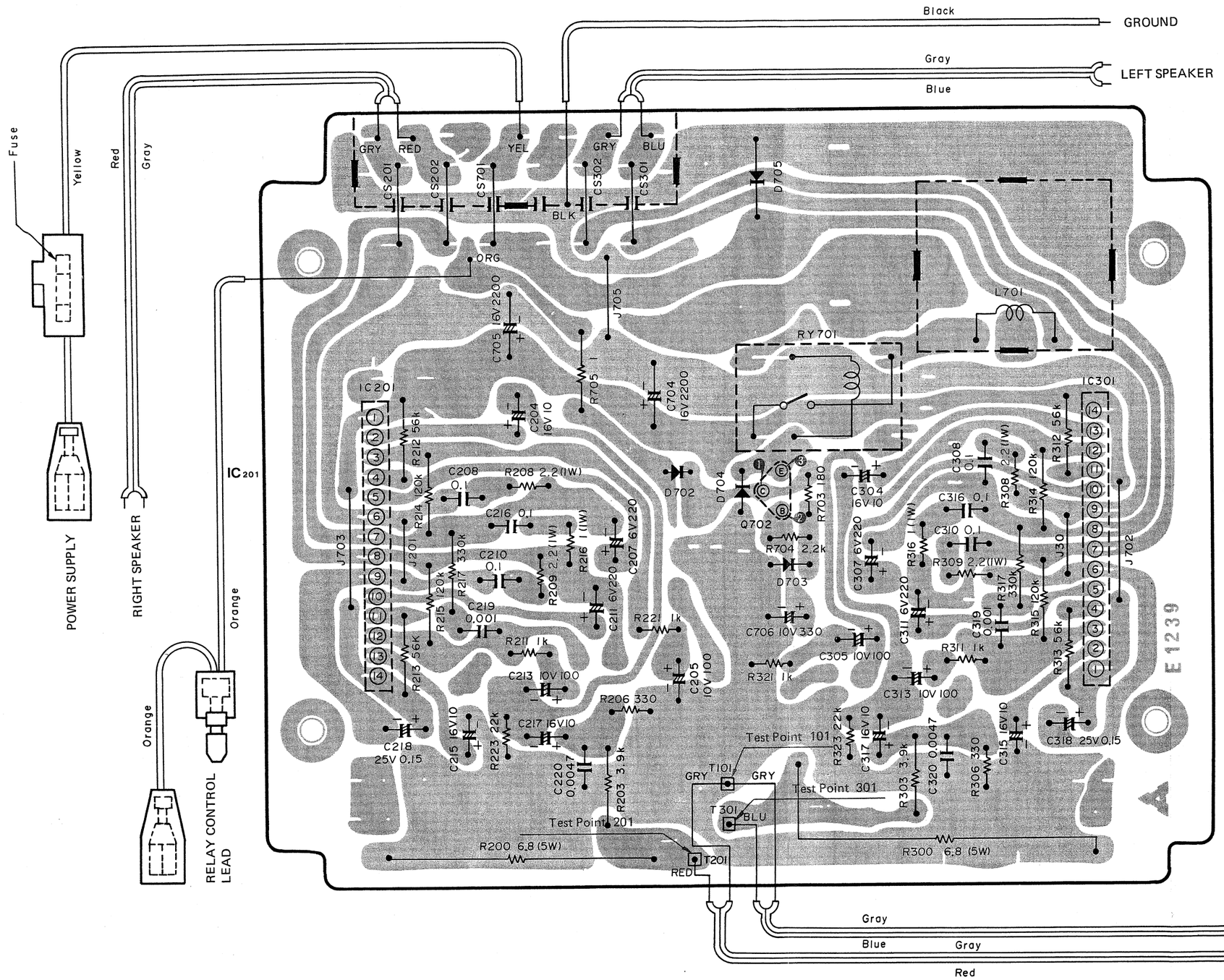
NOTES:

1) Voltage measurements are with respect to ground, with a digital voltmeter, with controls set for normal operation, no signal applied, 14.4 V DC, power supply.

- Exact value determined by production process. This schematic diagram is the latest at the time of printing and subject to change without notice. Replace same value as original parts.
- Important safety notice: Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.

| | | |

WIRING DIAGRAM MODELS CY-SB25EU/EC



■ Negative side is shown in blue.

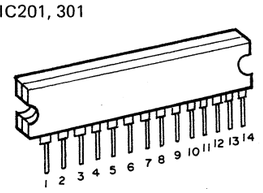
NO.	VOLTAGE
❶	13.6V
❷	9.9V
❸	9.3V
PIN.NO.	VOLTAGE
IC201, 301	
①	14.4V
②	0.1V
③	1.4V
④	3.9V
⑤	14.0V
⑥	0V
⑦	7.2V
⑧	7.2V
⑨	0V
⑩	14.0V
⑪	3.9V
⑫	1.4V
⑬	0.1V
⑭	14.4V

Q702

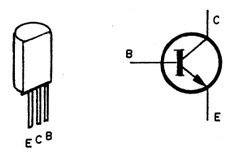
■ IC's & TRANSISTOR

● IC201, 301

IC301



● Q702



BOOSTER

Replacement Parts List
Model NO. CY-SB25EU/EC

NOTES:
1. Be sure to make your orders of replacement parts according to this list.
2. Important safety notice: Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
3. Next to the Ref. No. in the parts list is a location key, to show the general location of the parts shown in the exploded drawing, as in a road map.

Ref. No.	Part No.	Part Name & Description	Pcs Set	Remarks
MISCELLANEOUS				
⚠ F (2-C)	XBB1F50NS5	Fuse, 5 A	1	
M101 (2-B)	YEFA08126	Rear Plate	1	
M102 (3-B)	YEFA03501	Upper Cover	1	
M103 (1-B)	YEFA05238	Bottom Cover	1	
M104 (3-A)	YEFF01314	Heat Sink, Left	1	
M105 (1-C)	YEFF01315	Heat Sink, Right	1	
M106 (2-B)	YEFX007085	Cord Clamper	1	
M107 (2-C)	YEFX007254	Cord Clamper	1	
M108 (2-A) (1-B)	YEFX0211199	Mounting Bracket, IC	2	
M109 (1-A)	YEFX0211266	Mounting Bracket	1	
M110 (2-B)	YEFA13312	Case, Choke Coil	1	
M111 (3-C)	YEAJ01559	Power Supply Cord	1	
M112 (2-C)	YEAJ01560	Power Supply Cord w/Fuse	1	
M113 (3-C)	YEAJ03490	Speaker Cord, Right (Input)	1	
M114 (2-C)	YEAJ03453	Speaker Cord, Right (Output)	1	
M115 (2-C)	YEAJ03454	Speaker Cord, Left (Output)	1	
M116 (3-C)	YEAJ03489	Speaker Cord, Left (Input)	1	
M117	XYN3 + F10FXS	⊕ Screw w/Washer 3mmø x 10mm	4	
M118	XTB3 + 6FFYS	⊕ Screw, Bind 3mmø x 6mm	13	
M119 (3-C) (2-C)	YEFR04152	Insutation Cap	6	
M120	YEAJ09154	Ground Wire	1	

Ref. No.	Part No.	Part Name & Description	Pcs Set	Remarks
ICs AND TRANSISTOR				
IC201, 301	YEAMM51517L	Power Amp	2	
Q702	2SC1383	Relay Control	1	
DIODES				
D702, 704	YEAD030	Switching, Spark Suppression	3	
705		IC Protection		
D703	MA1100	Voltage Stabilizer	1	

CY-SB25EU/EC

Ref. No.	Part No.	Part Name & Description	Pcs Set	Remarks
CAPACITORS				
C204	ECEA1CS100	10 MFD 16WV Electrolytic	1	
C205	ECEA1AS101	100 MFD 10WV Electrolytic	1	
C207	ECEA0JS221	220 MFD 6WV Electrolytic	1	
C208	ECQV05104JZ	0.1 MFD 50WV ±5% Polyester	1	
C210	ECQV05104JZ	0.1 MFD 50WV ±5% Polyester	1	
C211	ECEA0JS221	220 MFD 6WV Electrolytic	1	
C213	ECEA1AS101	100 MFD 10WV Electrolytic	1	
C215	ECEA1CS100	10 MFD 16WV Electrolytic	1	
C216	ECQV05104JZ	0.1 MFD 50WV ±5% Polyester	1	
C217	ECEA1CS100	10 MFD 16WV Electrolytic	1	
C218	YECAE1ER15ZY	0.15 MFD 25WV Electrolytic	1	
C219	YECQX1H102K	0.001 MFD 50WV ±10% Polyester	1	
C220	YECQX1H472K	0.0047 MFD 50WV ±10% Polyester	1	
C304	ECEA1CS100	10 MFD 16WV Electrolytic	1	
C305	ECEA1AS101	100 MFD 10WV Electrolytic	1	
C307	ECEA0JS221	220 MFD 6WV Electrolytic	1	
C308	ECQV05104JZ	0.1 MFD 50WV ±5% Polyester	1	
C310	ECQV05104JZ	0.1 MFD 50WV ±5% Polyester	1	
C311	ECEA0JS221	220 MFD 6WV Electrolytic	1	
C313	ECEA1AS101	100 MFD 10WV Electrolytic	1	
C315	ECEA1CS100	10 MFD 16WV Electrolytic	1	
C316	ECQV05104JZ	0.1 MFD 50WV ±5% Polyester	1	
C317	ECEA1CS100	10 MFD 16WV Electrolytic	1	
C318	YECAE1ER15ZY	0.15 MFD 25WV Electrolytic	1	
C319	YECQX1H102K	0.001 MFD 50WV ±10% Polyester	1	
C320	YECQX1H472K	0.0047 MFD 50WV ±10% Polyester	1	
C704	ECEA1CS222SZ	2200 MFD 16WV Electrolytic	1	
C705	ECEA1CS222SZ	2200 MFD 16WV Electrolytic	1	
C706	ECEA1AS331	330 MFD 10WV Electrolytic	1	
CS201, 202	YECCL510446	1000 PF x 6	1	
301, 302				
701, 702				

CY-SB25EU/EC

Ref. No.	Part No.	Part Name & Description	Pcs Set	Remarks
RESISTORS				
R200	ERF5AK6R8	6.8 OHM 5W ±10% Fuse	1	
R203	ERD25TJ392	3.9k OHM 1/4W ±5% Carbon	1	
R206	ERD25VJ331	330 OHM 1/4W ±5% Carbon	1	
R208	ERX1ANJ3R3	3.3 OHM 1W ±5% Metal Film	1	
R209	ERX1AN2R2	2.2 OHM 1W ±5% Metal Film	1	
R211	ERD25VJ102	1k OHM 1/4W ±5% Carbon	1	
R212	ERD25TJ563	56k OHM 1/4W ±5% Carbon	1	
R213	ERD25TJ563	56k OHM 1/4W ±5% Carbon	1	
R214	ERD25TJ124	120k OHM 1/4W ±5% Carbon	1	
R215	ERD25TJ124	120k OHM 1/4W ±5% Carbon	1	
R216	ERX1ANJ1R0	1 OHM 1W ±5% Metal Film	1	
R217	ERD25TJ334	330k OHM 1/4W ±5% Carbon	1	
R221	ERD25VJ102	1k OHM 1/4W ±5% Carbon	1	
R223	ERD25VJ223	22k OHM 1/4W ±5% Carbon	1	
R300	ERF5AK6R8	6.8 OHM 5W ±10% Fuse	1	
R303	ERD25TJ392	3.9k OHM 1/4W ±5% Carbon	1	
R306	ERD25VJ331	330 OHM 1/4W ±5% Carbon	1	
R308	ERX1ANJ3R3	3.3 OHM 1/4W ±5% Carbon	1	
R309	ERX1AN2R2	2.2 OHM 1/4W ±5% Carbon	1	
R311	ERD25VJ102	1k OHM 1/4W ±5% Carbon	1	
R312	ERD25TJ563	56k OHM 1/4W ±5% Carbon	1	
R313	ERD25TJ563	56k OHM 1/4W ±5% Carbon	1	
R314	ERD25TJ124	120k OHM 1/4W ±5% Carbon	1	
R315	ERD25TJ124	120k OHM 1/4W ±5% Carbon	1	
R316	ERX1ANJ1R0	1 OHM 1W ±5% Metal Film	1	
R317	ERD25TJ334	330k OHM 1/4W ±5% Carbon	1	
R321	ERD25VJ102	1k OHM 1/4W ±5% Carbon	1	
R323	ERD25VJ223	22k OHM 1/4W ±5% Carbon	1	
R703	ERD25VJ181	180 OHM 1/4W ±5% Carbon	1	
R704	ERD25VJ222	2.2k OHM 1/4W ±5% Carbon	1	
R705	ERD25FJ1R0	1 OHM 1/4W ±5% Carbon	1	

CY-SB25EU/EC

Ref. No.	Part No.	Part Name & Description	Pcs Set	Remarks
		COIL		
L701	YETQ026F048A	Choke Coil	1	
		RELAY		
RY701	YEAS15029	Relay	1	
		ACCESSORIES		
A1	YEFG011020A	Front Bracket	2	
A2-1	YEJV12068	Screw w/Washer	4	
A2-2	YEJT01009	Screw	4	
A2-3	YEJN03006	Nut, Spring	4	
A2-4	YEAE01048	Wire Nut	8	
		PRINTINGS		
A3	YEFM28242	Instruction Book	1	
A4	YEFM28255	Instruction Book [CY-SB25EC Only]	1	

INSTALLATION INSTRUCTIONS